Sustainable Mapping Projects:

Missing ingredients in the Kibera Formula?

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1. Introduction

 'Map Kibera' has been held up as an exemplar of how mapping can be used to articulate community needs and thus empower disenfranchised communities; inspired by this ambition, this paper reports on a similar small scale exercise undertaken in a slum in Pune, India. Map Kibera has introduced a new variable into the politics of urban place: Technology to map and to disseminate information about places both to its occupants and those 'outisde'. We argue that there are unexplored issues arising from 'Map Kibera' regarding the social and political issues that arise with the production and dissemination of VGI from, and about, slum communities. Thus our research has had the following objectives:

- to undertake information gathering and dissemination using VGI techniques in a slum in Pune (replicating Map Kibera);
- to investigate the effects of technology on power dynamics within and outwith the slum community (examining how it disrupts/ reinforces existing power relationships);
- to identify who benefits from (or is disadvantaged by) the production and dissemination of VGI; for example does it merely create information 'hooks' by which outside authorities have greater control over slum dwellers?
- to explore how participatory mapping and VGI 'fits' in the context of land rights and ambitions of slum clearance (where land rights encompass legal rights and economic issues, cultural and social meanings of place, representations of place and 'the language' associated with place) - collectively referred to as the 'politics of place'.

2. Methodology

In order to fulfill our first objective we ran a seven-week project in Shankar Maharaj Slum in southern Pune, India (Figures 1 and 2), in collaboration with a local NGO, called Mashal. This project involved the mapping of Shankar Maharaj on OpenStreetMap by the community (Figure 2) and using the map as a basis for a system of communication between the slum dwellers, Mashal and the local government; FrontlineSMS text messaging was proposed as a way of sharing information.
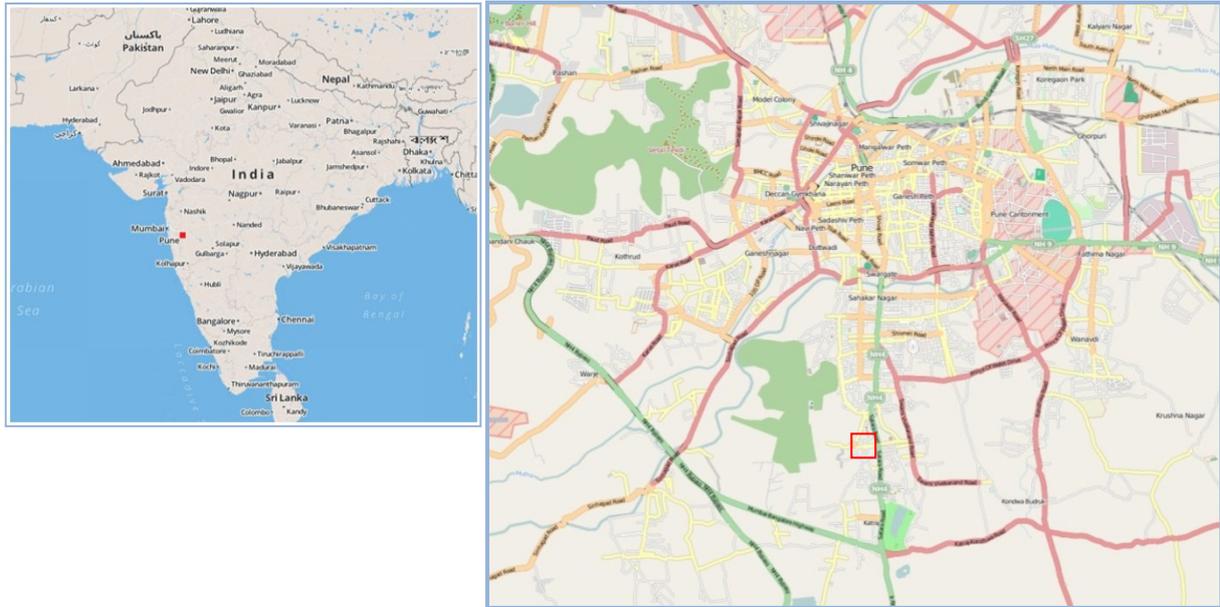
Figure 1. Overview of the Area: Location of Pune (left); location of Shankar Maharaj (right)

Source: Mapbox (TileMill) on the left and OpenStreetMap on the right
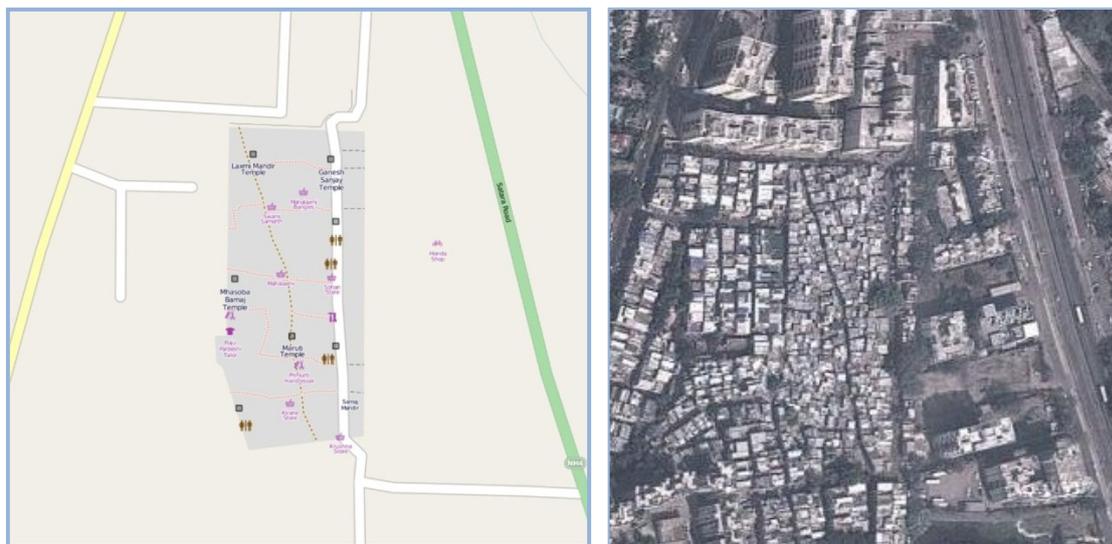
Figure 2. Shankar Maharaj Slum Source: OpenStreetMap (left); Google Maps satellite image (right)

The remaining three objectives were examined using participant observation in the form of a case study (Jorgensen, 1989, Yin, 1994). Data was gathered through field notes and interviews. Our ambition was to explore the nexus between the inhabitants of the slum, the external/political organisations that seek to govern these spaces, and the technology that might disrupt those relationships (an idea we try and capture in Figure 3). We were participants in the technological process of building the map and creating a platform to send SMS reports (B). We observed the processes that took place within the slum community level (A), and in the coordination of the whole project as part of Mashal (C). While Map Kibera has focused on what technology can achieve (B), our research has sought to investigate the various 'interactions' between these three arms.
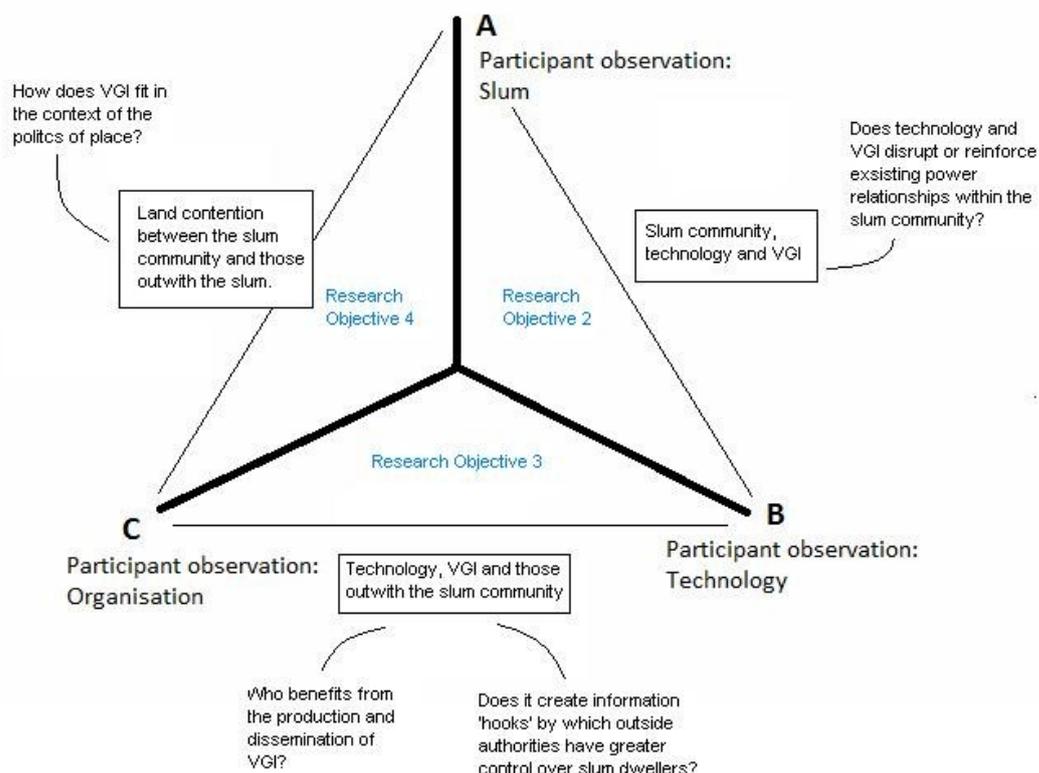
Figure 3. Participant observation and their relationship to the research objectives

3. Community mapping projects: Findings

In regard to our first objective we found that it is possible to partially mirror Kibera's achievement insofar that we successfully mapped Shankar Maharaj however we lacked participation from the slum community in reporting information about their slum via SMS. Our sense is that there are complex socio-technical issues at play, relating to trust and authority, and political ambitions that hinder both the production and dissemination of VGI.

3.1 Effects of technology within the slum community

Shankar Maharaj is a long established slum of 3000 people. It was mapped by two volunteers: Shantosh Gele and Santosh Abhang. Santosh Gele was born in Shankar Maharaj, however he now lives outside the slum and owns a photography shop across the street. Santosh Abhang lives in Shankar Maharaj and works in Gele's shop. Santosh Gele is a powerful man in Shankar Maharaj and as Kavita, one of the resident community volunteers, said in one our meetings "he will be the next area corporator" (Divare, 2012). He keeps himself involved in the community life within the slum and thus was present in every meeting we had. The 13 SMS reporters were all Resident Community Volunteers (RVCs). RCVs are the slum representatives assigned by the Local Government.

In an interview to Deepak Jagtap, one of the social workers from Mashal, he raised the issue of only having RCVs reporting SMS "will these 13 people make an effort?" "They may not go around telling the community about this project" "and this may be because political issues in the slum" (Jagtap, 2012) referring to RCVs being afraid of being reported to the local area

corporator by other slum dwellers if their reporting becomes 'inappropriate'. Since the beginning of our project neither Mashal nor the RCVs allowed participation of other members of the community.

3.2 Who benefits from the production and dissemination of VGI?

Slums are particularly vulnerable communities due to their physical and political fragile form, their informal nature, and the poor provision of infrastructure. Thus, the production of VGI from, and about, slums may be argued to have a greater effect upon these communities.

It is in light if this that our research investigated the potential side effects of producing VGI. We found that both Mashal and the local authorities saw this project as a tool to extract information from the slum communities that they had been reluctant to give through door-to-door questionnaires. In our meetings Neeta Chalke (convenor at Mashal) encouraged us to ask the slum dwellers for particular information such as rentals "[…] you should make your project more relevant to the current Indian situation and the problem now is information, how to gather information from the slum communities to improve RAY […]" (Chalke, 2012). (RAY is the national policy for a slum free India). Moreover, Poonam Mehta and her colleagues at the local government were very concerned about the use of the 'data' we would be collecting from the slum communities and whether they would be able to have control over that data.

The slum community expressed a real concern about this project becoming a way of increasing their dependency on the local government "the corporators don't help at all. And we don't want to be dependent on the corporator […] so if the problems we have can be solved on the spot by the community we should do that and then there is no need of sending SMS" (Shankar Maharaj, 2012a). In addition, Jyoti, a social worker from Mashal, emphasised "everything should be transparent and slum people should know what the benefits from participating are. Because only this way they (the slum community) will participate" (Jadhav, 2012). This benefit could take the form of information sent *to them* through SMS "we could receive information about jobs, workshops, policy" (Shankar Maharaj, 2012b).

3.3 Participatory mapping, VGI and 'politics of place'

The politics of place in Indian slums are shaped in great part by urban land values. In light of urban land scarcity and increasing land value, policies that aim for a "slum free India" put pressure on slum communities through 'slum rehabilitation programmes' (Government of India, 2011, Ministry of Housing and Urban Poverty Alleviation, 2005). Many would argue that this idea of a 'slum free India' is itself a flawed ambition (Saunders 2010). "They (slum rehabilitation policies) are business because slum people have the main land in Pune, in the centre of Pune and the builders want this land" (Japtap, 2012). The situation of slum communities is particularly complex because they do not hold any legal title that binds them to the land they occupy and therefore their bargaining power is minimal. Moreover the lack of power of slum communities is further reinforced by the representations of slum communities (see Ghertner, 2012, Lukes, 1974) and the language of such places (Gilbert, 2007).

Slum communities are extremely space inelastic because of their need to be close to their place of work "people want to know what area they will get if there is rehabilitation, because if they are shifted (to another area in the city) their livelihood will be lost because they will have to start from zero" (Shankar Maharaj, 2012).

4. Conclusion: Missing ingredients in the Kibera Formula?

Map Kibera was the first time a slum community mapped their slum in a form that provides free and open information and in combination with other activities empowered the community. Map Kibera has highlighted the benefits of information dissemination (Hagen, 2010) and it has been the catalyst for a new demand of free and open GI of slums. For example there is a new project in Tandale slum in Dar Es Salaam and Google Maps has recently launched a project to map slums using their new 'Map Maker' to "increase the quality and quantity of data on slum areas and their visibility through mapping" (Google, 2011). Worthy perhaps, but this research has highlighted the importance of considering the socio-technical contexts and the need to address important questions about data ownership and data access. Are there things missing in the 'Kibera Formula'? Slum dwellers are in a powerful position regarding knowledge about their space; however the production of free and open VGI eliminates the knowledge privileges that the slum dwellers had over the space they live in. In order to ensure the sustainability of participatory mapping projects we argue that a 'cycle of benefit' is required in which a mix of technologies can be used to feed information back into the community as a result of their shared data gathering endeavours – only then can such projects sustain themselves. Beyond the ethical considerations, there is also a need to address the authority of such information, and how it might affect relationships within the community, and those external to the community seeking its control.

5. Acknowledgements

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Biography

Candela Sanchez is currently a final year undergraduate student in the School of GeoSciences at The University of Edinburgh. She has worked with poor communities in Mexico and slums in India. Her interests are in slum land contention, the side effects of producing and disseminating of VGI, open mapping, and visualisation of information.

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Robin McLaren is currently director of Know Edge Ltd. Robin has been at the forefront of the GIS revolution and is recognised as a world expert in Spatial Data Infrastructures and Land Policy. He is currently supporting UN-HABITAT in formulating a National Land Policy for Iraq and designing pilot projects to test crowdsourcing support for land administration in Africa.